

CLAIMS

Claim 1. A vehicle door inner panel comprising a front end wall (12), a rear end wall (13), and a reinforcement beam (20) fastened between said end walls for transmitting force from a first door pillar (33) to which the door is fastened to a second door pillar (34) situated behind said door in the event of a collision, characterised in that the reinforcement beam (20) is formed, at least in part, as a single hat profile (21), a front end of said reinforcement beam being connected to said front end wall (12), and a rear end of said reinforcement beam being connected to said rear end wall, the front end of said reinforcement beam being connected to said front end wall at a location on said front end wall which is at least 5 millimeters above the location at which said rear end of said reinforcement beam is connected to said rear end wall such that the height of said reinforcement beam decreases continuously from the front end of said reinforcement beam to the rear end of said reinforcement beam.

Claim 2. The vehicle door inner panel as claimed in Claim 1, characterised in that the location at which said front end of said reinforcement beam is connected to said front end wall is at least 10 millimeters above the location at which said rear end of said reinforcement beam is connected to said rear end wall.

Claim 3. The vehicle door inner panel as claimed in Claim 1, characterised in that the front end of said reinforcement beam is connected to said front end wall above the midpoint of said front end wall, and the rear end of said reinforcement beam is connected to said rear end wall below the midpoint of said rear end wall.

Claim 4. The vehicle door inner panel as claimed in Claim 1, characterised in that the single hat profile (21) of said front end of said reinforcement beam (20) extends into a double hat profile (22) in a direction towards said rear end of said reinforcement beam (20).

Claim 5. The vehicle door inner panel as claimed in Claim 4, characterised in that said reinforcement beam (20) defines a curve or bend (24) in a transition region between the single hat profile (21) and the double hat profile (22).

Claim 6. The vehicle door inner panel as claimed in Claim 1, characterised in that the reinforcement beam (20) is connected to the front and rear end walls such that the closed end of the single hat profile (21) faces into the vehicle.

Claim 7. The vehicle door inner panel as claimed in Claim 4, characterised in that said reinforcement beam (20) is

connected between said front and rear end walls such that the closed ends of said single hat profile (21) and said double hat profile (22) face into the vehicle.

Claim 8. The vehicle door panel as claimed in Claim 1, characterised in that the reinforcement beam (20) continuously slopes downwardly and rearwardly in a direction between said front end wall and said rear end wall.

Claim 9. The vehicle door inner panel as claimed in Claim 1, characterised in that the inner panel is adapted to be hung on a A-pillar (33) of the vehicle, and the front end of said reinforcement beam (20) is attached to, or in close proximity to, an upper hinge (35) of said inner panel.

Claim 10. The vehicle door inner panel as claimed in Claim 9, characterised in that the rear end of said reinforcement beam (20) is attached to the rear end wall (13) of the inner panel, in close proximity to a door lock.

Claim 11. A vehicle door inner panel comprising a front end wall (12), a rear end wall (13), and a reinforcement beam (20) fastened between said end walls for transmitting force from a first door pillar (33) to which the door is fastened to a second door pillar (34) situated behind said door in the event of a

collision, characterised in that the reinforcement beam (20) is formed, at least in part, as a single hat profile (21), a front end of said reinforcement beam being connected to said front end wall (12), and a rear end of said reinforcement beam being connected to said rear end wall, the front end of said reinforcement beam being connected to said front end wall at a location on said front end wall above the location at which said rear end of said reinforcement beam is connected to said rear end wall such that the height of said reinforcement beam decreases continuously from the front end of said reinforcement beam to the rear end of said reinforcement beam, the single hat profile (21) of said front end of said reinforcement beam (20) extending into a double hat profile (22) in a direction towards said rear end of said reinforcement beam (20).

Claim 12. The vehicle door inner panel as claimed in Claim 11, characterised in that the front end of said reinforcement beam is connected to said front end wall above the midpoint of said front end wall, and the rear end of said reinforcement beam is connected to said rear end wall below the midpoint of said rear end wall.

Claim 13. The vehicle door inner panel as claimed in Claim 11, characterised in that said reinforcement beam (20) defines a curve or bend (24) in a transition region between the single hat profile (21) and the double hat profile (22).

Claim 14. The vehicle door inner panel as claimed in Claim 11, characterised in that said reinforcement beam (20) is connected between said front and rear end walls such that the closed ends of said single hat profile (21) and said double hat profile (22) face into the vehicle.

Claim 15. The vehicle door panel as claimed in Claim 11, characterised in that the reinforcement beam (20) continuously slopes downwardly and rearwardly in a direction between said front end wall and said rear end wall.

Claim 16. A vehicle door inner panel comprising a front end wall (12), a rear end wall (13), and a reinforcement beam (20) fastened between said end walls for transmitting force from a first door pillar (33) to which the door is fastened to a second door pillar (34) situated behind said door in the event of a collision, characterised in that the reinforcement beam (20) is formed, at least in part, as a single hat profile (21), a front end of said reinforcement beam being connected to said front end wall (12), and a rear end of said reinforcement beam being connected to said rear end wall, the front end of said reinforcement beam being connected to said front end wall at a location on said front end wall above the location at which said rear end of said reinforcement beam is connected to said rear end

wall such that the height of said reinforcement beam decreases continuously from the front end of said reinforcement beam to the rear end of said reinforcement beam, said inner panel adapted to be hung on the A-pillar (33) of the vehicle, the attachment end (21) of the reinforcement beam in the front end wall (12) of the inner panel overlapping the A-pillar when the door is fitted.

Claim 17. The vehicle door inner panel as claimed in Claim 16, characterised in that the single hat profile (21) of said front end of said reinforcement beam (20) extends into a double hat profile (22) in a direction towards said rear end of said reinforcement beam (20).

Claim 18. The vehicle door inner panel as claimed in Claim 1, characterised in that the front end of said reinforcement beam (20) is directly connected to the front end wall (12), and the rear end of said reinforcement beam (20) is connected to the rear end wall (13) through a bracket (30).

Claim 19. The vehicle door inner panel as claimed in Claim 11, characterised in that the front end of said reinforcement beam (20) is directly connected to the front end wall (12), and the rear end of said reinforcement beam (20) is connected to the rear end wall (13) through a bracket (30).

Claim 20. The vehicle door inner panel as claimed in Claim 16, characterised in that the front end of said reinforcement beam (20) is directly connected to the front end wall (12), and the rear end of said reinforcement beam (20) is connected to the rear end wall (13) through a bracket (30).